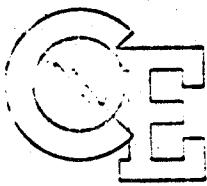


**Diagnostic Engineering Publication**

**1410/7010**

**Volume 2, 00**



IBM POUGHKEEPSIE  
December 3, 1963

Diagnostic Engineering Publication

1410/7010

Subject: Diagnostic Program CU06B - Super Scramble  
Sequence Number 055  
Replaces CU06A

- I. CU06 has been updated to be compatible with the new TC50 program.
- II. System and Two Channel Cards 3 cards 001 - 003

Enclosures: 23 Pages  
Card Deck for CARD ONLY SYSTEMS (as punched by UP51)  
8 Cards - Card Loader (1-7) and 1 Core Clear  
96 Cards No. 001 - 096 Data Cards  
1 Card Execute Card

Distribution: X 1410  
X 7010  
Other

**CUO6**

**Page 1**

**CUO6B**

**SUPER SCRAMBLE 1410-7010**

**SUPER SCRAMBLE 1410-7010**

**CONTENTS OF CUO6**

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## SUPER SCRAMBLE 1410-7010

00.0 TEST DESCRIPTION

## 1. Modifications

This obsoletes CUO6A. Running time five minutes.

## 2. Description

This program checks the ability of the 1410 or 7010 to perform any two CPU instructions in sequence. The program depends upon internal check circuitry to detect an error. There is no additional data check.

An instruction is selected from each of two tables, and placed in a work area where they are performed in sequence. Data fields are stored before and after and may be displayed. The program selects the next table 1 instruction, moves it to the work area, performs it followed by the previous Table 2 instruction. This sequence continues until Table 1 is exhausted.

The next Table 2 instruction is then moved to the work area where it will follow each selected Table 1 instruction. Thus, the program performs all combinations of instructions from the two tables.

Program is complete after six passes and types out "EOJ 6 PASSES."

A fields and B fields before and after and test instructions  
can be displayed after any stop by pressing Computer Reset  
And Start.

3. Equipment

1. 1402 Card Reader
2. 1411 CPU - 10K Memory
3. 1415 Console

4. Card Deck

Normal 7 card 1410 Loader

Cards 001-101 Program Deck

Card 103 Execute Card

5. EC Level of System

Not Applicable.

01.0 LOADING PROCEDURES

Normal 1410 or 7010 diagnostic load cards and procedure are used with this program.

Two standard tads are used:

1001 Enter 1 for loop

1001 Enter 0 for continue

1002 Not Used

1003 Enter 1 for program repeat  
Enter 0 to call next program

1004 Not Used

No other tads are used.

There is no internal tad routine in this program. Do not attempt to alter tads with the Inquiry Request Key.

02.0 OPERATING PROCEDURES

1. Program will type out "CUO6B."
2. On any error. Press Reset. Set Tad 1 (Loc. 1001) to 1 for repeat loop, Computer Reset and press start to display A and B fields and test instructions. Program halts after typeout. Press start to continue. If typeout is not desired, address set to 1825.
3. "EOJ 6 PASSES" will type out at end of program. If program repeat is desired, set 1 in Tad 3 (Loc. 1003) and press Start.

03.0 OPERATING HINTS, COMMENTS

1. Index 4 will contain plus and minus zeroes on alternate passes.
2. Instructions under test are executed in WA (1788-1818).
3. Index Reg. 1 (plus 3000) is address of Table 1 instruction to be tested.
4. Index Reg. 2 (plus 6000) is address of Table 2 instruction to be tested.
5. Index 10 contains the pass number.

04.0 PROGRAM STOPS AND RESTARTS

01788-01818

1. Any error stop. Set Tad 1 (Loc. 1001) to one for program loop. Computer Reset and Start if typeout is desired. Address set to 1825 to continue.

08240

2. Normal halt and branch after typeout of test instructions. Press Start to continue.

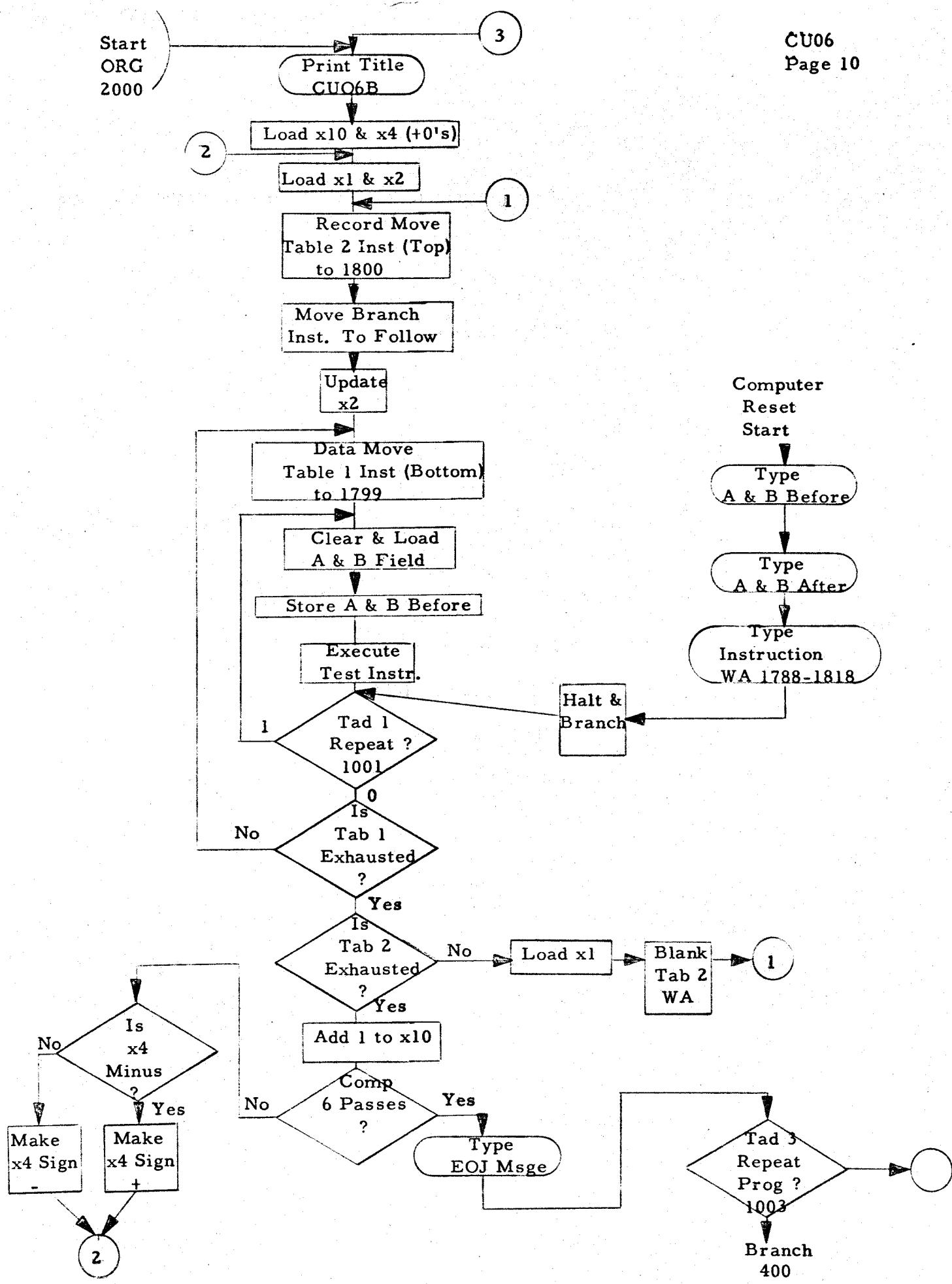
05.0 **TYPEOUTS**

1. "CUO6B" - Program identification address set to 08000 to type out following:  
R ABEFOR  
R 123 4 5 6 7 8 9 012 \*  
R BBEFOR  
R 12345  
R AAFTER  
R 123 4 5 6 7 8 9 012 \*  
R BAFTER  
R 12345  
R Instruction

DC02726027R01Y258J01825

**Test Instructions**

3. "End of JOB 6 PASSES"



SUPER SCRAMBLE 1410  
OPCODE OPERAND

CU06 PAGE 11  
CT ADDRS INSTRUCTION

PGIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
1002\$	*	SUPER SCRAMBLE	141C	7010		
1003\$		CIL	3			
1004\$		CRG	1001			
1005	TAC1	DC	3 ä 1 FOR LOOP		1	01001
1006	TAC2	DC	2 ä NCT USED		1	01002
1007	TAC3	DC	2 ä, G 1 FOR REPEAT PROG		1	01003
1008		ORG	1245			01245
1009\$		DCW	2055ORG		5	01249
1010	TSTNO	DC	ACU06BA, G		5	01250
1011		ORG	20C0		10	02000 H #TO 01250 W
1012	BEGIN	WCP	TSTNO		7	02010 R 02000 2
1013		BCB1	BEGIN		7	02017 R 02024 6
1014\$		BA1	GO		12	02024 D 07219 00074 X
1015\$	GO	MLCWA	ZEROES, 74	LCAD INDEX REG 10	12	02036 D 02707 00008 7
1016		MLCWS	BRRST-6, 8	MOVE WM TO FOLLOW INST	12	02048 D 02713 00007 X
1017\$		MLCWA	BRRST, 7	MOVE BR INST TO RESET LOC	12	02060 D 07219 00044 X
1018\$		MLCWA	ZEROES, 44	INDEX 4	12	02072 D 07224 00029 X
1019	A	MLCWA	TABCON, 29	INDEX 1	12	02084 D 07219 00034 X
1020		MLCWA	ZEROES, 34	INDEX 2	12	02096 D 02842 01800 H
1021	C	WRCWM	BLANK, 18C0	CLEAR WA	12	02108 D 060, 0 01800 H
1022		WRCW	60006X2, 18C0 REC	MOVE TAB2 INST TO WA	1	02120 D
1023		WRCW			7	02121 G 00034 A
1024\$		SAR	34		7	02128 G 02163 B
1025		SBR	*E11		11	02135 A 02867 02163
1026		A	SIX, F65		12	02146 D 06284 02158 3
1027\$		WLCS	R, F		6	02158 * 00000
1028	F	Sh	0		7	02164 G 02181 B
1C29\$		SBR			12	02171 D 02706 00009 X
1030		MLCWA	BRANCH, 0		11	02183 S 08296 00034
1031		S	006001, 34		12	02194 D 03040 01799 X
1032	BB	MLCWA	30C06X1, 1759 DATA MOVE TAB1 INST TC WA		7	02206 G 00029 A
IC33		SAR	29		7	02213 G 02295 B
1034		SBR	B629		11	02220 A 02873 02295
1035		A	ONE, B629		11	02231 S 08301 00029 D
1036		S	E03000, 29		12	02242 D 02756 02714 L
1037	AA	WRCWG	ALCAD, AFIELD-19	CLEAR AND LOAD AFIELD		

## CT ADDRS

PGLIN	LABEL	SUPER SCRAMBLE 1410	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1038		MRCWG	BLCAD,BFIELD-19	CLEAR AND LOAD BFIELD	12	02254	D 027777 02735 L
1039	E	MRCWG	AFIELD-19,ABEFFOR-19	STORE A BEFORE	12	02266	D 02714 02798 L
1040		MRCWG	BFIELD-19,BEFFOR-19	STORE B BEFORE	12	02278	D 02735 02819 L
1041		B	0		7	02290	J 00000
1042\$		NOP			1	02297	N
1043		ORG	1825			01825	
1044		BCE	AA,1C01,1	TAD 1 CN LOOP	12	01825	B 02242 01001 1
1045		C	6C010,29	IS TABLE 1 EXHAUSTED	11	01837	C 08306 00029
1046		BB			7	01848	J 02194 U
1047		C	E01185,34	IS TABLE 2 EXHAUSTED	11	01855	C 08311 00034
1048		BL	UPDATE		7	01866	J 01952 T
1049		A	ONE,74	TABLE 2 IS EXHAUSTED	11	01873	A 02873 00074
1050		C	E0C0005,74		11	01884	C 08316 00074
1051		BB	EOJ		7	01895	J 02300 U
1052		BZN	PLUS,44,K		12	01902	V 01933 00044 K
1053		MLZS	NFG,44		12	01914	D 02841 00044 2
1054		B	A		7	01926	J 02072
1055		MLZS	POS,44		12	01933	D 02840 00044 2
1056		B	A		7	01945	J 02072
1057		UPDATE	MLCWA TABCON,29	LOAD INDEX 1	12	01952	D 07224 00029 X
1058		B	C		7	01964	J 02096
1059		NOP			1	01971	N
1060		CRG	23C0		02300		
1061		MCP	MSGE		10	02300	M 210 07194 W
1062		BA1	*E1		7	02310	R 02317 H
1063		BCE	BEGIN,1CC3,1	TAD 3 ON REPEAT	12	02317	B 02000 01003 1
1064		B	40C		7	02329	J 00400
1065		NCP			1	02336	N
1066		ORG	30C0		03000		
1067		BEF1	18C0EX4		7	03000	R 01Y00 8
1068\$		18C0			7	03007	R 01800 8
1069\$		A	AFIELD&X4,BFIELD&X4	TABLE 1	11	03014	A 02X33 02X54
1070\$		A	AFIELD,BFIELD		11	03025	A 02733 02754
1071\$		S	AFIELD&X4,BFIELD&X4		11	03036	S 02X33 02X54
1072\$		S	AFIELD,BFIELD		11	03047	S 02733 02754
1073		ZA	AFIELD&X4,BFIELD&X4		11	03058	H 02X33 02X54

## SUPER SCRAMBLE 1410

## OPCODE OPERAND

PGLIN	LABEL	OPCODE	OPERAND
1074\$		ZA	AFIELD,BFIELD
1075		ZS	AFIELD $\times$ 4,BFIELD $\times$ 4
1076\$		ZS	AFIELD,BFIELD
1077		M	AFIELD-18 $\times$ 4,BFIELD-13 $\times$ 4
1078\$		M	AFIELD-18,BFIELD-13
1079		D	AFIELD-18 $\times$ 4,BFIELD-15 $\times$ 4
1080\$		D	AFIELD-18,BFIELD-15
1081		B	18C0 $\times$ 4
1082\$		B	18C0
1083		BU	18C0 $\times$ 4
1084\$		BU	18C0
1085		BE	18C0 $\times$ 4
1086\$		BE	18C0
1087		BL	18C0 $\times$ 4
1088\$		BL	18C0
1089		BR	18C0 $\times$ 4
1090\$		BR	18C0
1091		BZ	18C0 $\times$ 4
1092\$		BCV	18C0 $\times$ 4
1093		BCV	18C0 $\times$ 4
1094\$		BCV	18C0
1095		BAV	18C0 $\times$ 4
1096\$		BAV	18C0
1097		BNQ	18C0 $\times$ 4
1098\$		BNQ	18C0
1099		BNR1	18C0 $\times$ 4
1100\$		BNR1	18C0
1101		BCB1	18C0 $\times$ 4
1102\$		BCB1	18C0
1103		BER1	18C0 $\times$ 4
1104\$		BER1	18C0
1105		BEF1	18C0 $\times$ 4
1106\$		BEF1	1800
1107		BNT1	18C0 $\times$ 4
1108\$		BNT1	18C0
1109		BWL1	18C0 $\times$ 4

TABLE 1 CONT

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CT ADDRS INSTRUCTION

CT	ADDRS	INSTRUCTION
11	03069	Q 02733 02754
11	03080	* 02X33 02X54
11	03091	* 02733 02754
11	03102	* 02X15 02X41
11	03113	* 02715 02741
11	03124	* 02X15 02X39
11	03135	* 02715 02739
7	03146	J 01Y00
7	03153	J 01800
7	03160	J 01Y00 /
7	03167	J 01800 /
7	03174	J 01Y00 S
7	03181	J 01800 S
7	03188	J 01Y00 T
7	03195	J 01800 T
7	03202	J 01Y00 U
7	03209	J 01800 U
7	03216	J 01Y00 V
7	03223	J 01800 V
7	03230	J 01Y00 W
7	03237	J 01800 W
7	03244	J 01Y00 Z
7	03251	J 01800 Z
7	03258	J 01Y00 Q
7	03265	J 01800 Q
7	03272	R 01Y00 1
7	03279	R 01800 1
7	03286	R 01Y00 2
7	03293	R 01800 2
7	03300	R 01Y00 4
7	03307	R 01800 4
7	03314	R 01Y00 6
7	03321	R 01800 8
7	03328	R 01Y00 8
7	03335	R 01800 B
7	03342	R 01Y00 -

SUPER SCRAMBLE 1410  
 OPCODE OPERAND

PGLIN LABEL CT ADDRS INSTRUCTION

1110\$	BWL1	18C0	7	03349	R 01800 -
1111	BA1	18C0EX4	7	03356	R 01Y00 H
1112\$	BA1	18C0	7	03363	R 01800 H
1113	BCE	18C0EX4, BFIELDEX4, A	12	03370	B C1Y00 02X54 A
1114\$	BCE	18C0, BFIELD, A	12	03382	B 01800 02754 A
1115	BCE	18C0EX4, BFIELDEX4, B	12	03394	W 01Y00 02X54 B
1116\$	BCE	18C0, BFIELD, B	12	03406	W 01800 02754 B
1117	BW	18C0EX4, BFIELDEX4	12	03418	V 01Y00 02X54 1
1118\$	BW	18C0, BFIELD	12	03430	V C1800 02754 1
1119	BZN	18C0EX4, BFIELDEX4	12	03442	V 01Y00 02X54 2
1120\$	BZN	18C0, BFIELD	12	03454	V 01800 02754 2
1121	BWZ	18C0EX4, BFIELDEX4	12	03466	V 01Y00 02X54 3
1122\$	BWZ	18C0, BFIELD	12	03478	V 01800 02754 3
1123	C	AFIELDEX4, BFIELDEX4	11	03490	C 02X33 02X54
1124\$	C	AFIELD, BFIELD	11	03501	C 02733 02754
1125	SAR	BFIELD	7	03512	G 02754 A
1126	SBR	BFIELD	7	03519	G 02754 B
1127	SAR	BFIELD	7	03526	G 02754 A
1128	SBR	BFIELD	7	03533	G 02754 B
1129	SW	SPECEX4	6	03540	W 02Y42
1130\$	SW	SPEC	6	03546	W 02842
1131	CW	SPECEX4	6	03552	W 02Y42
1132\$	CW	SPEC	6	03558	W 02842
1133	CS	1750EX4	6	03564	/ 01X50
1134\$	CS	1750	6	03570	/ 01750
1135	CS	18C0EX4, 1750EX4	11	03576	/ C1Y00 01X50
1136\$	CS	18C0, 1750	11	03587	/ C1800 01750
1137\$	NOP		1	03598	N
1138	SCNL	AFIELDEX4, BFIELDEX4	12	03599	D 02X33 02X54
1139\$	SCNL	AFIELD, BFIELD	12	03611	D C2733 02754
1140	MLNS	AFIELDEX4, BFIELDEX4	12	03623	D 02X33 02X54 1
1141\$	MLNS	AFIELD, BFIELD	12	03635	D C2733 02754 1
1142	MLCS	AFIELD, BFIELD	12	03647	D 02733 02754 3
1143\$	MLCS	AFIELDEX4, BFIELDEX4	12	03659	D 02X33 02X54 3
1144\$	MLZS	AFIELD, BFIELD	12	03671	D C2733 02754 2
1145\$	MLZS	AFIELDEX4, BFIELDEX4	12	03683	D C2X33 02X54 2

TABLE CONTINUED

SUPER SCRAMBLE 1410  
OPCODE OPERAND

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PGLIN	LABEL	CT	ADDRS	INSTRUCTION
1146	MLWS	A	FIELD&X4, B FIELD&X4	02X54 4
1147\$	MLWS	A	FIELD, B FIELD	02X54 4
1148	MLNWS	A	FIELD&X4, B FIELD&X4	02X54 5
1149\$	MLNWS	A	FIELD, B FIELD	02X54 5
1150	MLZWS	A	FIELD&X4, B FIELD&X4	02X54 6
1151\$	MLZWS	A	FIELD, B FIELD	02X54 6
1	MLCWS	A	FIELD&X4, B FIELD&X4	02X54 7
1152	MLCWS	A	FIELD, B FIELD	02X54 7
1153\$	SCNLA	A	FIELD&X4, B FIELD&X4	02X54 8
1154	SCNLA	A	FIELD, B FIELD	02X54 8
1155\$	MLNA	A	FIELD&X4, B FIELD&X4	02X54 9
1156	MLNA	A	FIELD, B FIELD	02X54 9
1157\$	MLNA	A	FIELD, B FIELD	02X54 9
1158	MLZA	A	FIELD&X4, B FIELD&X4	02X54 10
1159\$	MLZA	A	FIELD, B FIELD	02X54 10
1160	MLCA	A	FIELD&X4, B FIELD&X4	02X54 11
1161\$	MLCA	A	FIELD, B FIELD	02X54 11
1162	MLWA	A	FIELD&X4, B FIELD&X4	02X54 12
1163\$	MLWA	A	FIELD, B FIELD	02X54 12
1164	MLNWA	A	FIELD&X4, B FIELD&X4	02X54 13
1165\$	MLNWA	A	FIELD, B FIELD	02X54 13
1166	MLZWA	A	FIELD&X4, B FIELD&X4	02X54 14
1167\$	MLZWA	A	FIELD, B FIELD	02X54 14
1168	MLCWA	A	FIELD&X4, B FIELD&X4	02X54 15
1169\$	MLCWA	A	FIELD, B FIELD	02X54 15
1170	SCNLB	A	FIELD&X4, B FIELD&X4	02X54 16
1171\$	SCNLB	A	FIELD, B FIELD	02X54 16
1172	MLNB	A	FIELD&X4, B FIELD&X4	02X54 17
1173\$	MLNB	A	FIELD, B FIELD	02X54 17
1174	MLZB	A	FIELD&X4, B FIELD&X4	02X54 18
1175\$	MLZB	A	FIELD, B FIELD	02X54 18
1176	MLCB	A	FIELD&X4, B FIELD&X4	02X54 19
1177\$	MLCB	A	FIELD, B FIELD	02X54 19
1178	MLWB	A	FIELD&X4, B FIELD&X4	02X54 20
1179\$	MLWB	A	FIELD, B FIELD	02X54 20
1180	MLNWB	A	FIELD&X4, B FIELD&X4	02X54 21
1181\$	MLNWB	A	FIELD, B FIELD	02X54 21

PGLIN	LABEL	OPCODE	OPERAND
1182		PLCWB	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1183\$		PLCWB	AFIELD,BFIELD
1184\$		PLZWB	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1185\$		PLZWB	AFIELD,BFIELD
1186		SCNL	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1187\$		SCNL	AFIELD,BFIELD
1188		PLN	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub> TABLE1 CONT
1189\$		PLN	AFIELD,BFIELD
1190		MLZ	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1191\$		MLZ	AFIELD,BFIELD
1192		MLC	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1193\$		MLC	AFIELD,BFIELD
1194		MLW	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1195\$		MLW	AFIELD,BFIELD
1196		MLNW	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1197\$		MLNW	AFIELD,BFIELD
1198		ML2W	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
1199\$		MLZW	AFIELD,BFIELD
1200		MLCW	AFIELD <sub>4</sub> ,BFIELD <sub>4</sub>
12C1\$		MLCW	AFIELD,BFIELD
1202		SCNR	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1203\$		SCNR	AFIELD-19,BFIELD-19
12C4		MRN	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
12C5\$		MRN	AFIELD-19,BFIELD-19
1206		MRZ	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1207\$		MRZ	AFIELD-19,BFIELD-19
12C8		MRW	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
12C9\$		MRNW	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1210		MRNW	AFIELD-19,BFIELD-19
1211\$		MRNW	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1212		MRNW	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1213\$		MRNW	AFIELD-19,BFIELD-19
1214		MRZW	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1215\$		MRZW	AFIELD-19,BFIELD-19
1216		MRCW	AFIELD-19 <sub>4</sub> ,BFIELD-19 <sub>4</sub>
1217\$		MRCW	AFIELD-19,BFIELD-19

CT	ADDR	INSTRUCTION
12	04127	D 02X33 02X54 P
12	04139	D 02733 02754 P
12	04151	D 02X33 02X54 0
12	04163	D 02733 02754 0
12	04175	D 02X33 02X54 6
12	04187	D 02733 02754 6
12	04199	D 02X33 02X54 A
12	04211	D 02733 02754 A
12	04223	D 02X33 02X54 B
12	04235	D 02733 02754 B
12	04247	D 02X33 02X54 C
12	04259	D 02733 02754 C
12	04271	D 02X33 02X54 D
12	04283	D 02733 02754 D
12	04295	D 02X33 02X54 E
12	04307	D 02733 02754 E
12	04319	D 02X33 02X54 F
12	04331	D 02733 02754 F
12	04343	D 02X33 02X54 G
12	04355	D 02733 02754 G
12	04367	D 02X14 02X35 8
12	04379	D 02714 02735 8
12	04391	D 02X14 02X35 9
12	04403	D 02714 02735 9
12	04415	D 02X14 02X35 0
12	04427	D 02714 02735 0
12	04439	D 02X14 02X35 #
12	04451	D 02714 02735 #
12	04463	D 02X14 02X35 #
12	04475	D 02714 02735 #
12	04511	D 02X14 02X35 G
12	04523	D 02714 02735 G
12	04535	D 02X14 02X35 H
12	04547	D 02714 02735 H

PLIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1218		SCNRR	AFIELD-19EX4,BFIELD-19EX4	12	04559	0 02X14 02X35 Y
1219\$		SCNRR	AFIELD-19,BFIELD-19	12	04571	0 02714 02735 Y
1220		MNRN	AFIELD-19EX4,BFIELD-19EX4	12	04583	0 02X14 02X35 Z
1221\$		PRNR	AFIELD-19,EFIELD-19	12	04595	0 02714 02735 Z
1222		PRZR	AFIELD-19EX4,BFIELD-19EX4	12	04607	0 02X14 02X35 *
1223\$		PRZR	AFIELD-19,EFIELD-19	12	04619	0 02714 02735 *
1224		MRCR	AFIELD-19EX4,BFIELD-19EX4	12	04631	0 02X14 02X35 *
1225\$		MRCR	AFIELD-19,BFIELD-19	12	04643	0 02714 02735 *
1226		MRRW	AFIELD-19EX4,BFIELD-19EX4	12	04655	0 02X14 02X35 Z
1227\$		MRRW	AFIELD-19,BFIELD-19	12	04667	0 02714 02735 *
1228		MRNWR	AFIELD-19EX4,BFIELD-19EX4	12	04679	0 02X14 02X35 *
1229\$		MRNWR	AFIELD-19,BFIELD-19	12	04691	0 02714 02735 *
1230		MRZWR	AFIELD-19EX4,BFIELD-19EX4	12	04703	0 02X14 02X35 *
1231\$		MRZWR	AFIELD-19,EFIELD-19	12	04715	0 02714 02735 *
1232		MRCWR	AFIELD-19EX4,BFIELD-19EX4	12	04727	0 02X14 02X35 *
1233\$		MRCWR	AFIELD-19,EFIELD-19	12	04739	0 02714 02735 *
1234		SCNRG	AFIELD-19EX4,BFIELD-19EX4	12	04751	0 02X14 02X35 Q
1235\$		SCNRG	AFIELD-19,BFIELD-19	12	04763	0 02714 02735 Q
1236		MNRNG	AFIELD-19EX4,BFIELD-19EX4	12	04775	0 02X14 02X35 R
1237\$		MNRNG	AFIELD-19,EFIELD-19	12	04787	0 02714 02735 R
1238		MRZG	AFIELD-19EX4,BFIELD-19EX4 TABLE 1 CONT	12	04799	0 02X14 02X35 *
1239\$		PRZG	AFIELD-19,EFIELD-19	12	04811	0 02714 02735 *
1240		PRCG	AFIELD-19EX4,BFIELD-19EX4	12	04823	0 02X14 02X35 *
1241\$		PRCG	AFIELD-19,BFIELD-19	12	04835	0 02714 02735 *
1242		PRWG	AFIELD-19EX4,BFIELD-19EX4	12	04847	0 02X14 02X35 *
1243\$		PRWG	AFIELD-19,EFIELD-19	12	04859	0 02714 02735 *
1244		MRNWG	AFIELD-19EX4,BFIELD-19EX4	12	04871	0 02X14 02X35 *
1245\$		MRNWG	AFIELD-19,EFIELD-19	12	04883	0 02714 02735 *
1246		PRZWG	AFIELD-19EX4,BFIELD-19EX4	12	04895	0 02X14 02X35 *
1247\$		PRZWG	AFIELD-19,BFIELD-19	12	04907	0 02714 02735 *
1248		MRCWG	AFIELD-19EX4,BFIELD-19EX4	12	04919	0 02X14 02X35 *
1249\$		MRCWG	AFIELD-19,EFIELD-19	12	04931	0 02714 02735 *
1250		SCNRM	AFIELD-19EX4,BFIELD-19EX4	12	04943	0 02X14 02X35 H
1251\$		SCNRM	AFIELD-19,BFIELD-19	12	04955	0 02714 02735 H
1252		MRNRM	AFIELD-19EX4,BFIELD-19EX4	12	04967	0 02X14 02X35 I
1253\$		MRNRM	AFIELD-19,EFIELD-19	12	04979	0 02714 02735 I

PGLIN	LABEL	OPCODE	SCRAMBLE	OPERAND	CT	ADDRS	INSTRUCTION
1254		MRZM	A	FIELD-19EX4,BFIELD-19EX4	12	04991	D 02X14 02X35 Q
1255\$		MRZM	A	FIELD-19,BFIELD-19	12	05003	D 02714 02735 H
1256		MRCM	A	FIELD-19EX4,BFIELD-19EX4	12	05015	D 02X14 02X35 *
1257\$		MRCM	A	FIELD-19,BFIELD-19	12	05027	D 02714 02735 *
1258		MRWM	A	FIELD-19EX4,BFIELD-19EX4	12	05039	D 02X14 02X35 □
1259\$		MRWM	A	FIELD-19,BFIELD-19	12	05051	D 02714 02735 □
1260		MRNWM	A	FIELD-19EX4,BFIELD-19EX4	12	05063	D 02X14 02X35 □
1261\$		MRNWM	A	FIELD-19,BFIELD-19	12	05075	D 02714 02735 □
1262		MRZWM	A	FIELD-19EX4,BFIELD-19EX4	12	05087	D 02X14 02X35 □
1263\$		MRZWM	A	FIELD-19,BFIELD-19	12	05099	D 02714 02735 □
1264		MRCWM	A	FIELD-19EX4,BFIELD-19EX4	12	05111	D 02X14 02X35 H
1265\$		MRCHM	A	FIELD-19,BFIELD-19	12	05123	D 02714 02735 H
1266		LL	A	FIELDEX4,BFIELD-1EX4	12	05135	T 02X33 02X53 1
1267\$		LL	A	FIELD,BFIELD-1	12	05147	T 02733 02753 1
1268		LE	A	FIELDEX4,BFIELD-1EX4	12	05159	T 02X33 02X53 2
1269\$		LE	A	FIELD,BFIELD-1	12	05171	T 02733 02753 2
1270		LLE	A	FIELDEX4,BFIELD-1EX4	12	05183	T 02X33 02X53 3
1271\$		LLE	A	FIELD,BFIELD-1	12	05195	T 02733 02753 3
1272		LH	A	FIELDEX4,BFIELD-1EX4	12	05207	T 02X33 02X53 4
1273\$		LH	A	FIELD,BFIELD-1	12	05219	T 02733 02753 4
1274		LLH	A	FIELDEX4,BFIELD-1EX4	12	05231	T 02X33 02X53 5
1275\$		LLH	A	FIELD,BFIELD-1	12	05243	T 02733 02753 5
1276		LEH	A	FIELDEX4,BFIELD-1EX4	12	05255	T 02X33 02X53 6
1277\$		LEH	A	FIELD,BFIELD-1	12	05267	T 02733 02753 6
1278		MCS	A	FIELDEX4,BFIELDEX4	11	05279	Z 02X33 02X54
1279\$		MCS	A	FIELD,BFIELD	11	05290	Z 02733 02754
1280		MCE	A	FIELDEX4,BFIELDEX4	11	05301	E 02X33 02X54
1281\$		MCE	A	FIELD,BFIELD	11	05312	E 02733 02754
1282		BC9	18C0EX4		7	05323	J 01Y00 9
1283		ORG	60C0			06000	
1284		A	A	FIELDEX4,BFIELDEX4	11	06000	A 02X33 02X54
1285		S	A	FIELDEX4,BFIELDEX4	11	06011	S 02X33 02X54
1286		ZA	A	FIELDEX4,BFIELDEX4	11	06022	Q 02X33 02X54
1287		ZS	A	FIELDEX4,BFIELDEX4	11	06033	Y 02X33 02X54
1288		H	A	FIELDJ-18EX4,BFIELD-13EX4	11	06044	2 02X15 02X41
1289		D	A	FIELD-18EX4,BFIELD-15EX4	11	06055	Z 02X15 02X39

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PGLIN LABEL CPCOD COPERAND

PGLIN	LABEL	CPCOD	COPERAND	CT	ADDRS	INSTRUCTION
1290		B	1825EX4	7	06066	J 01Y25
1291		BU	1825EX4	7	06073	J 01Y25 /
1292		BE	1825EX4	7	06080	J 01Y25 \$
1293		BL	1825EX4	7	06087	J 01Y25 T
1294		BR	1825EX4	7	06094	J 01Y25 U
1295		BL	1825EX4	7	06101	J 01Y25 V
1296		BCV	1825EX4	7	06108	J 01Y25 W
1297		BAV	1825EX4	7	06115	J 01Y25 Z
1298		BNQ	1825EX4	7	06122	J 01Y25 Q
1299		BNR1	1825EX4	7	06129	R 01Y25 1
1300		BCB1	1825EX4	7	06136	R 01Y25 2
1301		BER1	1825EX4	7	06143	R 01Y25 4
1302		BEF1	1825EX4	7	06150	R 01Y25 8
1303		BNT1	1825EX4	7	06157	R 01Y25 B
1304		BWL1	1825EX4	7	06164	R 01Y25 -
1305		BA1	1825EX4	7	06171	R 01Y25 G
1306		BEF1	1825EX4	7	06178	R 01Y25 8
1307		BCE	1825EX4,8FIELDEX4,A	12	06185	B 01Y25 02X54 A
1308		BBE	1825EX4,8FIELDEX4,B	12	06197	W 01Y25 02X54 B
1309		BW	1825EX4,8FIELDEX4	12	06209	V 01Y25 02X54 1
1310		BZN	1825EX4,8FIELDEX4	12	06221	V 01Y25 02X54 2
1311\$		BWZ	1825EX4,8FIELDEX4	12	06233	V 01Y25 02X54 3
1312		C	AFIELDEX4,8FIELDEX4	11	06245	C 02X33 02X54
1313		SAR	8FIELD	7	06256	G 02754 A
1314		SBR	8FIELD	7	06263	G 02754 B
1315		SAR	8FIELD	7	06270	G 02754 A
1316		SBR	8FIELD	7	06277	G 02754 B
1317	R	SK	SPECEX4	6	06284	• 02Y42
1318		CH	SPECEX4	6	06290	• 02Y42
1319		CS	1750EX4	6	06296	/ 01X50
1320		CS	1825EX4,1750EX4	11	06302	/ 01Y25 01X50
1321		SCNL	AFIELDEX4,8FIELDEX4	12	06313	D 02X33 02X54
1322		MLNS	AFIELDEX4,8FIELDEX4	12	06325	D 02X33 02X54 1
1323\$		MLZS	AFIELDEX4,8FIELDEX4	12	06337	D 02X33 02X54 2
1324		MLCS	AFIELDEX4,8FIELDEX4	12	06349	D 02X33 02X54 3
1325		MLWS	AFIELDEX4,8FIELDEX4	12	06361	D 02X33 02X54 4

TABLE 2 CONT

PGIN	LABEL	OPCOD	OPERAND	CT	ADDRS	INSTRUCTION
1326		MLNWS	AFIELDEX4,BFIELD&X4	12	06373	D 02X33 02X54 5
1327		MLZWS	AFIELDEX4,BFIELD&X4	12	06385	D 02X33 02X54 6
1328		MLZWS	AFIELDEX4,BFIELD&X4	12	06397	D 02X33 02X54 6
1329		PLCWS	AFIELDEX4,BFIELD&X4	12	06409	D 02X33 02X54 7
1330		SCNLA	AFIELDEX4,BFIELD&X4	12	06421	D 02X33 02X54 8
1331		MLNA	AFIELDEX4,BFIELD&X4	12	06433	D 02X33 02X54 /
1332		PLZA	AFIELDEX4,BFIELD&X4	12	06445	D 02X33 02X54 S
1333		PLCA	AFIELDEX4,BFIELD&X4	12	06457	D 02X33 02X54 T
1334		MLWA	AFIELDEX4,BFIELD&X4	12	06469	D 02X33 02X54 U
1335		MLNWA	AFIELDEX4,BFIELD&X4	12	06481	D 02X33 02X54 V
1336		PLCWA	AFIELDEX4,BFIELD&X4	12	06493	D 02X33 02X54 X
1337		MLNB	AFIELDEX4,BFIELD&X4	12	06505	D 02X33 02X54 J
1338		MLZB	AFIELDEX4,BFIELD&X4	12	06517	D 02X33 02X54 K
1339		MLCB	AFIELDEX4,BFIELD&X4	12	06529	D 02X33 02X54 L
1340		MLWB	AFIELDEX4,BFIELD&X4	12	06541	D 02X33 02X54 M
1341		MLCWB	AFIELDEX4,BFIELD&X4	12	06553	D 02X33 02X54 P
1342\$		MLZWA	AFIELDEX4,BFIELD&X4	12	06565	D 02X33 02X54 W
1343		SCNLB	AFIELDEX4,BFIELD&X4	12	06577	D 02X33 02X54 -
1344		MLNWB	AFIELDEX4,BFIELD&X4	12	06589	D 02X33 02X54 N
1345\$		MLZWB	AFIELDEX4,BFIELD&X4	12	06601	D 02X33 02X54 O
1346		SCNL	AFIELDEX4,BFIELD&X4	12	06613	D 02X33 02X54 E
1347		MLN	AFIELDEX4,BFIELD&X4	12	06625	D 02X33 02X54 A
1348		MLZ	AFIELDEX4,BFIELD&X4	12	06637	D 02X33 02X54 B
1349		MLC	AFIELDEX4,BFIELD&X4	12	06649	D 02X33 02X54 C
1350		MLW	AFIELDEX4,BFIELD&X4	12	06661	D 02X33 02X54 D
1351\$		MLNW	AFIELDEX4,BFIELD&X4	12	06673	D 02X33 02X54 E
1352		PLZLW	AFIELDEX4,BFIELD&X4	12	06685	D 02X33 02X54 F
1353		MLCW	AFIELDEX4,BFIELD&X4	12	06697	D 02X33 02X54 G
1354		SCNR	AFIELD-19EX4,BFIELD-19EX4	12	06709	D 02X14 02X35 8
1355		MRN	AFIELD-19EX4,BFIELD-19EX4	12	06721	D 02X14 02X35 9
1356		MRZ	AFIELD-19EX4,BFIELD-19EX4	12	06733	D 02X14 02X35 0
1357		MRC	AFIELD-19EX4,BFIELD-19EX4	12	06745	D 02X14 02X35 #
1358		MRW	AFIELD-19EX4,BFIELD-19EX4	12	06757	D 02X14 02X35 3
1359		MRNW	AFIELD-19EX4,BFIELD-19EX4	12	06769	D 02X14 02X35 6
1360		MRZW	AFIELD-19EX4,BFIELD-19EX4	12	06781	D 02X14 02X35 T
1361		MRCW	AFIELD-19EX4,BFIELD-19EX4	12	06793	D 02X14 02X35 N

TABLE 2 CONT

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OPCODE OPERAND

PGLIN	LABEL	CT	ADDRS	INSTRUCTION
1362	SCNRR	A FIELD-19EX4,B FIELD-19EX4	12	06805 D 02X14 02X35 Y
1363	MNRN	A FIELD-19EX4,B FIELD-19EX4	12	06817 D 02X14 02X35 Z
1364	MRZR	A FIELD-19EX4,B FIELD-19EX4	12	06829 D 02X14 02X35 *
1365	MRCR	A FIELD-19EX4,B FIELD-19EX4	12	06841 D 02X14 02X35 *
1366	MRWR	A FIELD-19EX4,B FIELD-19EX4	12	06853 D 02X14 02X35 %
1367	MRNWR	A FIELD-19EX4,B FIELD-19EX4	12	06865 D 02X14 02X35 S
1368	MRZWR	A FIELD-19EX4,B FIELD-19EX4	12	06877 D 02X14 02X35 S
1369	MRCRW	A FIELD-19EX4,B FIELD-19EX4	12	06889 D 02X14 02X35 H
1370	SCNRG	A FIELD-19EX4,B FIELD-19EX4	12	06901 D 02X14 02X35 Q
1371	MRNG	A FIELD-19EX4,B FIELD-19EX4	12	06913 D 02X14 02X35 R
1372	MRZG	A FIELD-19EX4,B FIELD-19EX4	12	06925 D 02X14 02X35 *
1373	MRGG	A FIELD-19EX4,B FIELD-19EX4	12	06937 D 02X14 02X35 S
1374	MRWG	A FIELD-19EX4,B FIELD-19EX4	12	06949 D 02X14 02X35 *
1375	MRNWG	A FIELD-19EX4,B FIELD-19EX4	12	06961 D 02X14 02X35 B
1376	MRZWG	A FIELD-19EX4,B FIELD-19EX4	12	06973 D 02X14 02X35 *
1377	MRCWG	A FIELD-19EX4,B FIELD-19EX4	12	06985 D 02X14 02X35 L
1378\$	SCNRM	A FIELD-19EX4,B FIELD-19EX4	12	06997 D 02X14 02X35 H
1379	MRNM	A FIELD-19EX4,B FIELD-19EX4	12	07009 D 02X14 02X35 I
1380	MRZM	A FIELD-19EX4,B FIELD-19EX4	12	07021 D 02X14 02X35 H
1381	MRCM	A FIELD-19EX4,B FIELD-19EX4	12	07033 D 02X14 02X35 *
1382	MRWM	A FIELD-19EX4,B FIELD-19EX4	12	07045 D 02X14 02X35 O
1383	MRNNM	A FIELD-19EX4,B FIELD-19EX4	12	07057 D 02X14 02X35 L
1384	MRZNM	A FIELD-19EX4,B FIELD-19EX4	12	07069 D 02X14 02X35 T
1385	MRCSM	A FIELD-19EX4,B FIELD-19EX4	12	07081 D 02X14 02X35 H
1386	LL	A FIELDEX4,B FIELD-1EX4	12	07093 T 02X33 02X53 1
1387	LE	A FIELDEX4,B FIELD-1EX4	12	07105 T 02X33 02X53 2
1388	LLE	A FIELDEX4,B FIELD-1EX4	12	07117 T 02X33 02X53 3
1389	LH	A FIELDEX4,B FIELD-1EX4	12	07129 T 02X33 02X53 4
1390	LLH	A FIELDEX4,B FIELD-1EX4	12	07141 T 02X33 02X53 5
1391	LEH	A FIELDEX4,B FIELD-1EX4	12	07153 T 02X33 02X53 6
1392	MCS	A FIELDEX4,B FIELDEX4	11	07165 Z 02X33 02X54
1393	MCE	A FIELDEX4,B FIELDEX4	11	07176 E 02X33 02X54
1394	BC9	1825EX4	7	07187 J 01Y25 9
1395	MSGE	DC	20	07194
1396	ZEROES	DCW	5	07219
1397	TABCCN	DCW	5	07224

## PGLIN LABEL

## OPCODE

## OPERAND

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
1358		CRG	17E8		01788	
1359	hA	DA	1X31,*,6		01788	
14C0		CRG	27C0		02700	
14C1\$	BRANCH	CCW	2JC1825 a	7	02706	
14C2\$	ERRST	CCW	2JC8000 a	7	02713	
14C3	AFIELD	CCW	a	20	02733	
14C4	EFIELC	CCW	a	20	02754	
14C5	ALCAC	CCW	2123 4 5 6 7 8 9 012+a,6	20	02756	
14C6	BLOAD	CCW	212345	20	02777	
14C7	ABEFCRE	CCW	a	20	02817	
14C8	EBEFCRE	CCW	a	20	02838	
14C9	POS	CC	a@	1	02840	
1410	NEG	DC	a-@	1	02841	
1411	SPEC	DC	a @	1	02842	
1412	BLANK	DC	a	18	02843	
1413\$	SIX	CCW	a 0CC062	6	02867	
1414\$	CNE	CCW	a C0001@	6	02873	
1415		CRG	80C0		08000	
1416		WCP	HDR1	10	08000	M ZTO 08247 W
1417		BCB1	*-16	7	08010	R 08000 2
1418		BA1	*@1	7	08017	R 08024 M
1419		WCP	ABEFCR-19	10	08024	M ZTO 02798 W
1420		BCB1	*-16	7	08034	R 08024 2
1421		BA1	*@1	7	08041	R 08048 M
1422		WCP	HDR2	10	08048	M ZTO 08255 W
1423		BCB1	*-16	7	08058	R 08048 2
1424		BA1	*@1	7	08065	R 08072 M
1425		WCP	BBEFCR-19	10	08072	M ZTO 02819 W
1426		BCB1	*-16	7	08082	R 08072 2
1427		BA1	*@1	7	08089	R 08096 M
1428		WCP	HDR3	10	08096	M ZTO 08263 W
1429		BCB1	*-16	7	08106	R 08096 2
1430		BA1	*@1	7	08113	R 08120 M
1431		WCP	AFIELD-19	10	08120	M ZTO 02714 W
1432		BCB1	*-16	7	08130	R 08120 2
1433		BA1	*@1	7	08137	R 08144 M

## SUPER SCRAMBLE 141C

## INSTRUCTION

PGLIN	LABEL	OPCODE	OPERAND	CT	ADDRS	INSTRUCTION
1434		WCP	HCR4	10	08144	M Z10 08271 W
1435		BCB1	*-16	7	08154	R 08144 2
1436		BA1	*61	7	08161	R 08168 H
1437		WCP	BFIELD-19	10	08168	M Z10 02735 W
1438		BCB1	*-16	7	08178	R 08168 2
1439		BA1	*61	7	08185	R 08192 H
1440		WCP	HCR5	10	08192	M Z10 08279 W
1441		BCB1	*-16	7	08202	R 08192 2
1442		BA1	*61	7	08209	R 08216 H
1443		WCPW	WA	10	08216	L Z10 01768 W
1444		BCB1	*-16	7	08226	R 08216 2
1445		BA1	*61	7	08233	R 08240 H
1446\$		H	1825	6	08240	* 01825
1447\$		NCP		1	08246	N
1448	HCR1	CC	2ABEFOR 2,6	7	08247	
1449	HCR2	CC	2B8EFOR 2,6	7	08255	
1450	HCR3	DC	2AAFTER 2,6	7	08263	
1451	HCR4	DC	2BAFTER 2,6	7	08271	
1452	HCR5	DC	2INSTRUCTION 2,6	12	08279	
1453\$		END	BEGIN		J02000	
1453\$			006001	5	08296	
1453\$			603C00	5	08301	
1453\$			60C010	5	08306	
1453\$			601185	5	08311	
1453\$			600005	5	08316	

END OF ASSEMBLY

